

## Nokia nosing closer to cameraphone convergence?

Written by Richard Butler

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It's very easy, when you spend any amount of time learning and writing about one area, to focus in on that niche. We may spend most of our waking lives thinking or talking about digital cameras in the dpreview office but it's worth remembering that there's a whole world beyond digital cameras – there are camera phones, for example.

Finnish handset giant Nokia contacted us because it considers its latest phone/camera/music player, the N86 8MP, to be its most sophisticated photographic device yet and thought we'd be interested. It was always likely that there would be some convergence between compact cameras and camera phones so we thought we'd take a quick look, to see how close this 8 megapixel camera phone brings us.

Damian Dinning has previously been a product manager and product development manager for Minolta and Kodak and has been made responsible for fine-tuning the image performance and future product guidance at Nokia. He spoke to us about the work Nokia has been doing to develop the N86: "We've been focussing on low-light performance and the speed of the device. The prime mission is to record the moment in a wide range of situations.

It's at this point that Dinning makes his first use of the term '24/7,' which occurs frequently enough in our conversation that it sounds remarkably as if it might be part of the product's 'key messaging': 'As part of a 24/7 lifestyle, you never know what situation you'll find yourself wanting to shoot in.' What the company has done to make the phone's camera useful at any time is to offer a bright, wide-angle lens: 28mm equivalent with a maximum aperture of F2.4.

'We've also increased the speed of the camera. We'd like to go even further with this but we're getting pretty close to average digital compact camera responsiveness, in terms of autofocus speed, shutter lag and shot-to-shot time.'

Despite the admirably fast autofocus and the provision of a dedicated zoom rocker, our experience of the phone is that its camera mode is considerably less easy to use than a major brand compact. However, you can customise the menu to include options such as exposure compensation, which is not something you can say about many telephones.

The company's size as, the world's largest handset maker, does give it the luxury of being able to shop around for sensors: 'we're not tied to one company, our size means we can work with many different vendors and work with multiple suppliers,' he says: 'The sensor is 1/2.5", it's the same as in a typical compact camera. It's one of the latest generation CMOS sensors and is the most sensitive on the market.'

The result is a phone that suggests using its 8MP mode for producing A3 sized prints. Dinning explains: 'We're using noise reduction which means the files end up being smaller – the compression is about the same as a typical compact camera.' However, we have doubts about this claim, given that the Nokia's images tended to average around 1.2MB – rather than the roughly 3.5MB images produced by the eight megapixel compacts we looked back at.

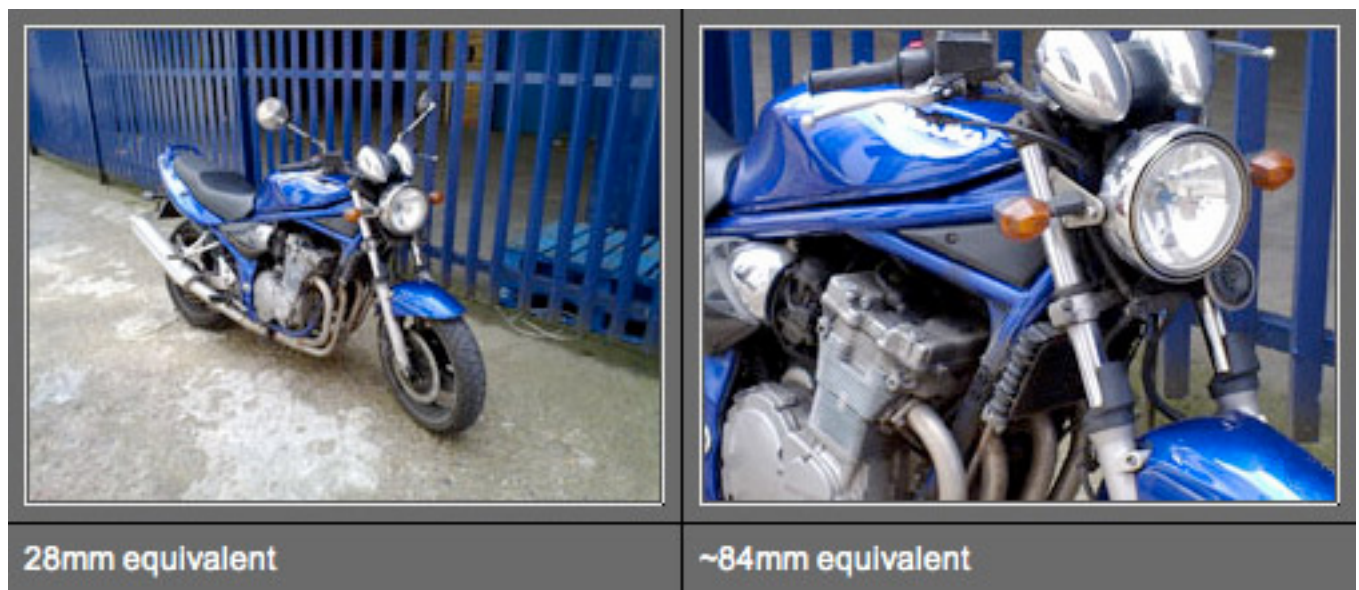
However, it is clear that concessions have been made to ensure the images can be sensibly transferred off the camera. 'We've had some 20x30" prints made and, when viewed from a normal viewing distance, they're amazing. There's a limit to how many poster-sized prints you can fit in your walls though. A lot of these images will be used on community and sharing sites such as Facebook, Flickr and MySpace. It comes back to usage – we have a pretty good balance between image quality and having a small file size to increase the uploading speed.'

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'Image quality is always a balance between multiple parameters,' Dinning concedes: 'We choose to prioritise vibrancy of colour, even though we may have compromised other areas to offer that vibrancy. We've conducted extensive benchmarking and have found that punchy, vibrant colour is something that people prioritise highly'.



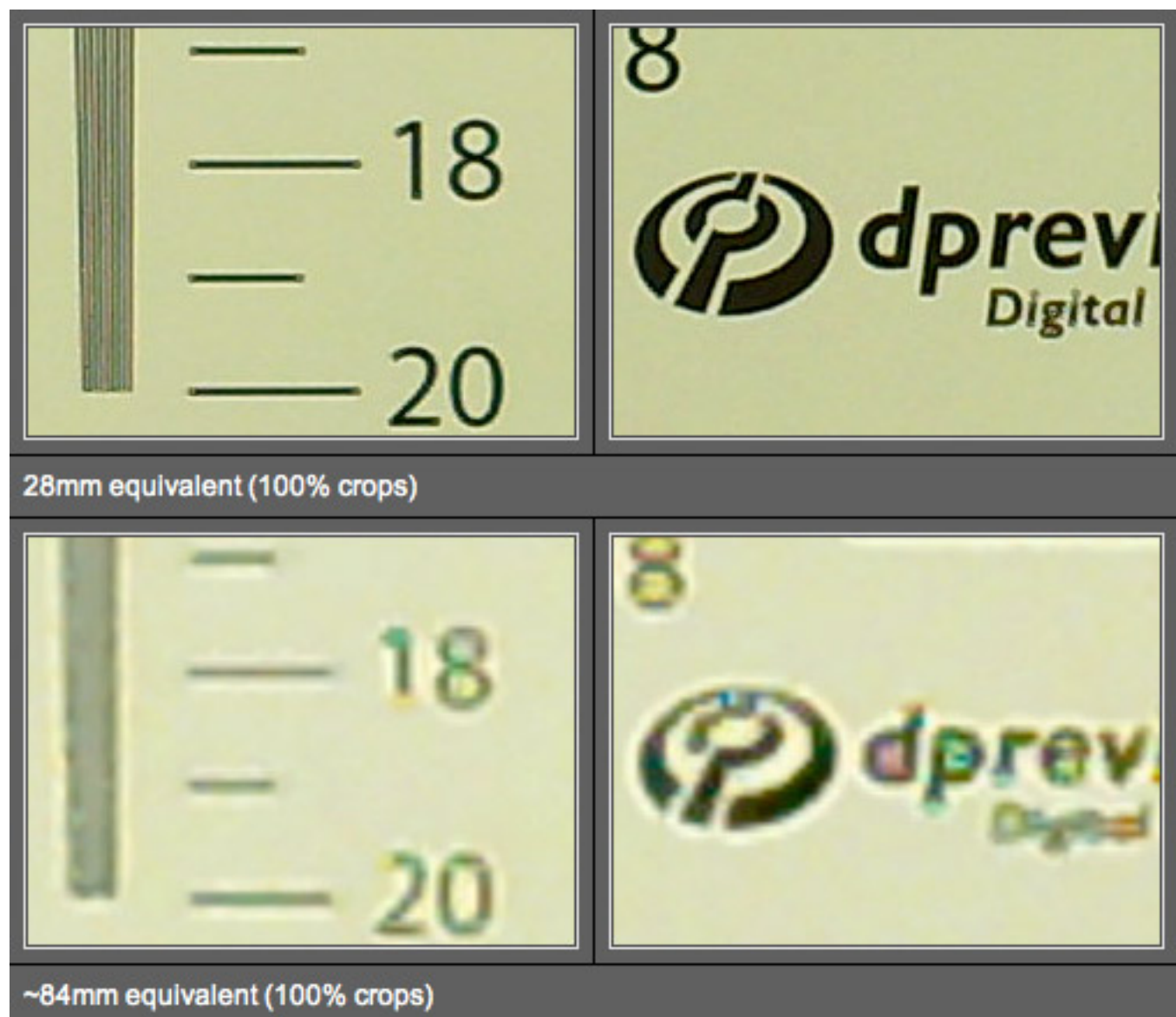
Despite these limitations, the company clearly understands the importance of a good lens. The Carl Zeiss-branded lens module is made of four aspherical elements that are aligned during manufacture using the sensor's image output. Each module is then calibrated individually, to take into account its alignment and this calibration data is stored on the phone. 'It's been quite a challenge' says Dinning: 'It took us two years to develop. We work with Carl Zeiss, who have been involved right from concept through to production, pushing the quality of the lens forward.'

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However, the use of a prime lens, albeit one with a useful focal length 'for the 24/7 user', means that the 3X zoom offered is entirely digital, which has a devastating effect on the camera's resolution. The zoomed images are up-sampled back to 8MP, with rather interesting results.





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‘There’s no optical zoom yet,’ says Dinning: ‘there have been previous models with optical zoom but they were more of a camcorder in your pocket. The N86 8MP offers personal navigation and a really good music player as well as a camera – a broad range of capabilities. If we were to throw all those away we could perhaps free some space up for an optical zoom but we need the technology to develop a bit further before we can offer them all together.’



28mm equivalent



100% crop



~84mm equivalent



100% crop

Despite this, Dinning feels the N86 8MP is ready to replace compact cameras in most situations. 'We're not suggesting they should be a replacement for DSLRs but in terms of where you can take it and where you'd want to take it, it has a lot to offer the 24/7 photo enthusiast. I think there's a lot of evidence that people have been using their phones in the place of compact cameras already.'

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<http://www.zonezero.com/magazine/articles/butler/index.php>